

GOVERNOR'S TASK FORCE ON STEROID USE AND PREVENTION



FINAL REPORT

to

Acting Governor Richard J. Codey

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FOREWORD

*Peter King*¹

We would be blind—as parents, as coaches, as administrators, as politicians, as health professionals, as concerned New Jerseyans—to think it can’t happen here.

We would be blind to think steroid use among teenagers are Texas’ problem and Connecticut’s problem and California’s problem and not ours, because we’ve already seen it. We’ve seen it with the arrest of three men with ties to Pequannock High School, men who accepted 30 shipments with glass vials of steroids. We’ve heard it with the testimony before our Task Force of students in high school and college here. One, a Division III football player, said he knew of five of his New Jersey high school teammates who experimented with steroids, and one who would have if he wasn’t petrified of his father finding out he was a user.

We would be blind, because that’s what steroid distributors and manufacturers want us to be. Blind. Ignorant. And protectors of the status quo.

We can’t be.

“It’s a secret society,” said one Montclair State athlete who went to high school in New Jersey. “I know guys who’ve used them, and believe me; they would do anything to make sure nobody found out. And I mean nobody. Guys will lie about steroids more than they’ll lie about drinking, cheating on a test, anything. Because if people know you cheat, it’s a black mark that never goes away.”

A black mark, and a gigantic health risk. Anabolic steroids are synthetic substances designed to artificially increase muscle mass and to jack up the level of the male hormone testosterone. Using steroids increases the risk of liver and kidney disease, severe acne, high blood pressure, body disfigurement, and testicle shrinkage. Steroid use also stunts growth prematurely and permanently.

Let’s not exaggerate the problem of steroids among teenagers in New Jersey. Steroid use is not an epidemic. There are schools; this Task Force is convinced, where steroid use is miniscule or nonexistent. We’re probably a mirror of the national trend that shows steroid use creeping up. From 2.5 percent among high school students in 2000 to 4 percent in 2002, according to a University of Michigan research study. At least 500,000 high-school students are current users, according to a respected Penn State professor.

We’re one of the most populous states in the union. Some of those kids are ours. Chances are, a lot of them are. One thousand? Four thousand? That’s unimportant. Ten would be too many.

¹ Peter King is Senior Staff Writer for *Sports Illustrated*. He is also a television journalist for HBO’s *Inside the NFL*.

We have vigilant coaches and athletic directors in our state, many of which are trying hard to curb steroid use. One coach told our task force he has year-round conditioning sessions, and at each session his athletes are weighed. If an athlete's weight has increased too much too fast, he is challenged as to why. That's good. An athletic director in his first year at a large school told us he was intent on creating the kind of year-round conditioning program at his school that would make any attempt to cheat moot. That's good too.

And there are infinitely more clean kids than dirty ones. The clean kids want to see steroids erased. These are not nerdy, do-gooders. These are competitive, tough, hard-working kids who simply want a level playing field. One Montclair High School student said he knows his parents would be willing to pay a fee to support a random-testing program ... just so he, and his parents, would know every game would be a fair fight.

"If you ask our players," the student said, "all they would want is that the players across from them be under the same rules as we are. We don't want to play against men when we're boys."

That's the sentiment that drove the work of this task force for the last five months. We hope we've illuminated a problem we desperately need to address in New Jersey.

Executive Summary

Acting Governor Richard J. Codey signed Executive Order 46, which created the Governor's Task Force on Steroid Abuse and Prevention on July 19, 2005.

The Task Force includes physicians, attorneys, school administrators and certified athletic trainers, as well as a sports journalist. These individuals have extensive experience working with student athletes on a regular basis and have knowledge of the extent and effect of steroid use in New Jersey. Monsignor Michael Kelly, Headmaster of Seton Hall Preparatory School, serves as chairperson of the Task Force.

Executive Order 46 mandated the following:

That there be established the Governor's Task Force on Steroid Use and Prevention, which shall be composed of the Commissioners of Education and Health and Senior Services and 16 public members, drawn from the fields of education, science, athletics, law, and journalism, who have expertise and experience in assessing and dealing with teen steroid use.

That the Governor shall appoint the Chair of the Task Force. The members of the Task Force shall serve at the pleasure of the Governor and shall not receive compensation for their service on the Task Force.

And, that the Task Force shall be responsible for:

1. holding public hearings and a summit to gather information on the physical and psychological effects of steroid use on teenagers;
2. determining the extent of the problem among high school student-athletes in New Jersey;
3. ascertaining the feasibility, legality, and prudence of implementing statewide, mandatory steroid testing;
4. developing a statewide steroid education program to be taught in our schools;
5. determining the most appropriate academic setting, such as physical education or health class, in which to implement said educational program;
6. examining the effects and prevalence of other performance enhancers, such as nutritional supplements, and determining whether to include information on them in the proposed educational program;
7. crafting a comprehensive policy on steroid use and prevention, to be introduced in New Jersey schools.
8. by December 1, 2005, the Task Force shall present to the Governor a comprehensive report setting forth its findings and recommendations for addressing the problem of teen steroid use.

In addition, a Summit on Steroid Use and Prevention for State high school athletic directors and other school administrators shall be convened this winter.² The Summit will serve to educate school personnel about the issue of teen steroid use and about concrete steps they can take to eliminate the problem in their individual schools.

Summary of Recommendations

Members of the Task Force were divided into five (5) subcommittees – Research, Education, Testing, Health/Psychological Effects of Steroids and Nutritional Supplements and Steroids and College Athletics. Subcommittee recommendations were presented to the full Task Force for consideration.

Research Advisory Subcommittee Recommendations

- Repeal of N.J.S.A. 18A: 36-34³ (Active Consent Law)
- Establish regular surveys of New Jersey students to determine the prevalence of the use of steroids, as well as the attitudes of students towards the use of steroids and performance enhancing supplements.
- Develop and enact legislation to make the sale of creatine and other “performance enhancing” supplements illegal to minors in the State of New Jersey.
- Develop and enact legislation to make the distribution, sale or marketing of supplements by public school employees to minors a misdemeanor.
- Develop and enact legislation requiring the posting of steroid warnings in gymnasiums and locker rooms of New Jersey public and non-public educational institutions.⁴
- Establish “Steroid Awareness Week” as an annual event.

² The Governor’s Summit on Steroid Use and Prevention was held on November 29, 2005 at Rutgers University in New Brunswick, New Jersey.

³ This statute requires that prior to a school district administering academic or nonacademic surveys to its students, it is required to obtain written informed consent from a parent or legal guardian. This statute has resulted in the absence of reliable data on steroid and other drug use by students in New Jersey. Legislative bills S760/A824 will change current law to permit student participation in a voluntary survey if a district sends prior notification to the student’s parents.

⁴ See *infra* p. 19.

Education Advisory Subcommittee Recommendations

- Steroid education should be built into programs currently being utilized in New Jersey schools, such as the Drug Abuse Resistance Education (DARE) program. DARE Steroid education should be introduced at the fifth grade level.
- Each school district should utilize the ATLAS and ATHENA models of steroid prevention for high school students.⁵
- Integrate information on steroids, including prevention strategies, strength building alternatives and the understanding of health food labels, into health and physical education curricula at the 7th and 8th grade levels.
- Develop a curriculum on steroids for high school Health and Physical Education teachers to implement into their classroom instruction.
- Recommend that the Athletic Trainer's Society of New Jersey develop a downloadable presentation that certified athletic trainers can use to educate parent groups and students in a classroom setting.
- Develop a mandatory steroids and nutritional supplements training program -- to include workshops and speakers -- for all high school and middle school coaches. Incorporate steroid, steroid precursors and nutritional supplement education as well as alternatives to strength gains into the coaches' education program.
- Develop a training program for high school science teachers, student assistant coordinators (SACs) and school nurses on the harmful effects of steroids and performance enhancers.
- Direct the Governor's Council on Alcoholism and Drug Abuse, and recommend that the Partnership for a Drug Free New Jersey develop posters and anti-steroid advertisements as well as Public Service Announcements (PSA's) highlighting the dangers of steroid use, steroid precursors and nutritional supplements. Such posters would be displayed in locker rooms, weight rooms, athletic training facilities and at all state tournament games and championships.
- Encourage school districts to organize school assembly programs on steroid prevention.

⁵ Athletes Training and Learning to Avoid Steroids (ATLAS) is a program for boys' high school sport teams. ATLAS reduced new use of anabolic steroids, alcohol use, drinking and driving, other illicit drug use (marijuana, amphetamines and narcotics) and taking nutritional supplements. ATLAS received the Model Program Award from the Center for Substance Abuse Prevention (2000) and the Exemplary Award from Safe & Drug Free Schools (2001). Athletes Targeting Healthy Exercise and Nutrition Alternatives (ATHENA) is a school-based team - centered prevention program for female athletes on middle and high school sports, dance and cheer leading teams.

- Conduct semi-annual or annual workshops for coaches and athletic directors in identifying the components of steroid abuse/use and prevention strategies.
- Provide speakers on steroid prevention strategies to all coaches' workshops (approximately 30 per year) for all sports, particularly those whose athletes are at high risk, i.e., football, wrestling, etc.
- Provide anti-steroid ads in all of our sports programs and also as public service announcements at all state tournament games. The resources of the Partnership for a Drug-Free New Jersey should be utilized to do this.
- Make available all steroid education programs and materials to Volunteer Youth League coaches in New Jersey.

Testing Advisory Subcommittee Recommendations

- Conduct testing for steroids

Recommended Options for Testing

- Random championship testing for student-athletes
 - Random year-round testing for student-athletes
 - Random year-round testing and championship testing for student-athletes
- Repeal of the active consent law for surveys.⁶

Steroids and Nutritional Supplements Advisory Subcommittee Recommendations

- Remove pro-hormone products⁷ from open shelves and place behind counter.
- Limit the sale of pro-hormones to those 18 years or older.
- Survey a representative sample of New Jersey students to identify nutritional supplement usage patterns.
- Develop education programs based on the findings of the statewide survey (e.g. ATLAS, ATHENA models)⁸.

⁶ See *supra* at n. 3.

⁷ Pro-hormones, also known as steroid precursors, are substances that can be converted by the body into testosterone. See *infra* n.23.

⁸ See *supra*. at n. 5.

- Randomly test dietary supplement products for sale in New Jersey to detect steroid contamination.
- Assess an appropriate levy on all muscle building nutritional supplements to discourage their use and raise revenues for statewide surveys, testing and educational programs.
- Impose monetary and criminal penalties on manufacturers and owners of retail, internet, and mail order establishments selling the contaminated products.

RESEARCH⁹

In Executive Order No. 46, signed by Acting Governor Richard Codey on July 19, 2005, the Task Force was charged with developing a comprehensive policy on steroid use and prevention. Included in his charge was the responsibility to determine the extent of the problem among high school student-athletes in New Jersey.

The Research Sub-Committee reviewed available national and statewide data and conducted an informal survey of New Jersey High School Athletic Trainers. This sub-committee also conducted one-on-one interviews with New Jersey students, trainers, coaches and athletic directors and researched the statutes and regulations of other states.

As a result of a review of the available data, the Research Sub-Committee has formulated seven recommendations for the Task Force's consideration for inclusion in the final report.

Who is using?

National

In a 2005 National Federation of State High School Associations (NFHS) report to member schools, Executive Director Robert Kanaby stated "More than one million young people in the United States have used non-prescribed steroids at least once in their lifetimes. A *Monitoring the Future (MTF)* survey funded by the National Institute on Drug Abuse reported an increase in anabolic steroid use and a decrease in perceived harm among 10th graders from 1988 to 1999.¹⁰ Not only are more of our high schoolers using steroids, but they are less aware of their harmful effects."

A recent Centers for Disease Control and Prevention (CDC) study reports 6.1% of students in grades 9-12 have taken steroids without a doctor's prescription, with 6.4% of male high school seniors and 3.3% of female seniors admitting have taken steroids at least once. The CDC cites the figure of 7.3% for the number of ninth grade females who have tried steroids.¹¹

According to a July 2005 nationwide survey of more than 10,000 adolescents published in the *Journal of Pediatrics*, almost 5% of teenage boys and 2% of teenage girls use potentially unhealthy products ranging from protein powders to growth hormone and injectable steroids at least weekly to improve appearance or strength.¹²

Since 1975 the University of Michigan's Institute for Social Research has annually conducted its *MTF* survey to collect national data on 30-day, annual and lifetime drug use.

⁹ David Suiter chaired the Subcommittee on Research. Members included David Evans, Esq., Peter King, Kim DeGraw-Cole, Frances Miceli, William VonLeer and Jodi Bocco.

¹⁰ Monitoring the Future is an ongoing study of the behaviors, attitudes, and values of American secondary school students, college students, and young adults. Available in Appendix #3.

¹¹ Available at <http://www.cdc.gov/mmwr/pdf/ss/ss5302.pdf>.

¹² Available at http://www.usatoday.com/news/health/2005-07-31-teens-bodies_x.htm.

The 2004 *MTF* survey concluded that steroid use among 12th graders remained stable at 2.5% from 2000 – 2004. Decreases in use by 8th (1.6 to 1.1%) and 10th graders (2.1% to 1.5%) were reported for the same time period.

In studies undertaken by the National Youth Sports Research and Development Center (1989 and 1992) of 10-14 year old youth participation in sports showed an overall usage rate of between 1% and 2%.

The 2001 NCAA Quadrennial Survey of college athletes reported that 41.8% of steroid users said they began using steroids in high school, a 25% increase from the 1997 survey.

New Jersey

Two surveys specifically addressing with New Jersey respondents are the New Jersey Division of Health Services *Household Survey on Drug Use and Health* (HSDUH) and the New Jersey *Youth Risk Behavior Survey* (YRBS).¹³

The 2001 *YBRS* showed an increase in “the use of steroid pills or shots without a doctor’s prescription” from 3% in 1995 to 5% in 2001, including over 4000 respondents (1.2%) who would be classified as regular users (40 or more times in their lifetime). The *YBRS* findings are consistent with the national averages cited above.

The 2003 *HSDUH* (which includes respondents of all ages) indicated that use during the prior 12 months at a rate of less than 0.5% and lifetime use at slightly below 1%.

Although the percentage of users in some of the surveys cited above appear to be low, it is important to note that each percentage point represents thousands of youngsters.

Peter King, a member of the Governor’s Task Force and Research sub-committee, interviewed 28 coaches, athletes, athletic trainers and school administrators at three sites to ask about the use of steroids by New Jersey high school student-athletes.

He concluded that “while steroids are definitely in use in New Jersey high school sports—mostly in football, from those I interviewed—the use of steroids is not widespread at all levels of sport. Generally, those I spoke with felt, as one might suspect, that the use is more prevalent at the schools where athletes have a better chance of using sports to get college scholarships.”

An athletic trainer who attended high school at a Shore Conference school and now trains in the area said he goes to high school football and wrestling events and sees evidence of usage. “You can stand on the sidelines and look at arms and necks and tell,” he said. “I’ve worked out in gyms and seen the transactions. Steroids are being used. I can’t tell you by how many kids, but I can tell you it’s a problem.”

¹³ Available at <http://www.state.nj.us/njded/students/yrbs/>. See also Appendix #3.

An informal web-based survey conducted by the *Athletic Trainer's Society of NJ* concluded, "there was an increase in the use of performance enhancing drugs. Of those with a positive response the main reason for an increase in use was the pressure to win and advance, like the professional athletes"

Their research also indicated that the greatest use of steroids and supplements is in large, suburban schools.

A similar statement was made by Gregg Ficarra, Athletic Director for the Perth Amboy Public Schools and President of the Directors of Athletic Association of New Jersey (DAANJ) in his testimony before the Task Force. He opined that there seems to be more steroid use in suburban, affluent districts than in urban districts, citing the availability of training opportunities outside the school setting (private health clubs, personal trainers, etc), a higher level of pressure to make or start on varsity teams in suburban schools, and money to purchase performance enhancing substances.

In a one-on-one interview, one North Jersey public school athlete, a safety on his team and fairly frail, was asked whether he ever used them. He said no. "Quite frankly, I can't afford them. None of my teammates can."

Why Students are Using?

One athlete who now plays football at Montclair State and who went to high school in Essex County told Peter King there were five players from his high school who used steroids to try to secure a full scholarship to a Division I school. "Another kid would have used them but he always said he was afraid of his father finding out and killing him," the MSU student said. "The bottom line is those kids were willing to risk getting caught because they wanted to play at the next level, and they knew to play at the next level they had to do anything to gain an advantage."

In his testimony before the Task Force, Dr. Robert Franks¹⁴ stated, "scholastic athletes often turn to these substances (steroids) to augment their performance in their chosen sport. Due to increased competition in today's high school sports, many use substances to keep up with their peers who are using. Some succumb to peer pressure to fit into their respective teams. Still other athletes use performance enhancing substances to emulate their professional heroes."

However, athletic advantage is not the only reason that young people use steroids. According to a recent *Dallas Morning News* article, "Many teenager steroid users are non-athletes. Inspired by the sculpted bodies of teen models and ubiquitous images equating muscularity with sex appeal, the *vanity* users take steroids to impress classmates and potential girlfriends.

¹⁴ Dr. Robert Franks is a physician with the New Jersey Association of Osteopathic Physicians. His testimony is available at http://www.nj.gov/steroids/hearing_audio.html.

Perceived Risk of Harm, Disapproval and Availability

As disturbing as the statistics of use and the reasons for use are, even more alarming statistics from the *MTF* survey are the consistent decline in the perceived risk of harm from steroid use over the last 10 years to a low of less than 60% and that nearly 50% of the 12th graders said that steroids were “fairly easy” or “very easy” to get. The percentage of high school seniors who disapprove of the use of steroids has remained consistent over the last 10 years at about 92%.¹⁵

Recommendation: Establish regular surveys of New Jersey students to determine the prevalence of use and attitudes toward steroids and performance enhancing supplements.

Recommendation: Encourage the NJSIAA to conduct regular surveys to determine the prevalence of use and attitudes toward using steroids and performance enhancing supplements among New Jersey *student-athletes*.

Recommendation: Through Executive Order, establish “Steroid Awareness Week” as an annual event.

Impediments

The research committee found two major impediments in determining the extent of steroid use among the youth of New Jersey.

The first is the secret nature of steroid use.

An athletic trainer at a high school in western New Jersey, on the job since 1987, said his experience tells him there are probably “15 rogue schools” who have steroid-users and will lie to protect them.

“It’s a secret society,” a Montclair State athlete said. “I know guys who’ve used them, and believe me; they would do anything to make sure nobody found out. And I mean nobody.

“In my opinion,” he continued, “guys will lie about steroids more than they’ll lie about drinking, cheating on a test, anything. Because if people know you cheat, it’s a black mark that never goes away.”

One Shore Conference trainer said: “Kids lie in questionnaires; I see the truth in gyms in the area. It’s not rampant, but kids are using.”

The second impediment encountered by the research committee was the minimal amount of current data specific to New Jersey. The passage of N.J.S.A 18A: 36-34 in 2002, requiring the

¹⁵ See *supra* at n. 10; See Appendix #3.

prior, written consent of parents or legal guardians before their children can participate in surveys, has greatly affected the quality and quantity of New Jersey data.¹⁶

In testimony before the Task Force, Terrance Farley, Esq. of the Ocean County Prosecutor's Office stated that prior to the passage of 18A: 36-34 "New Jersey's surveys were considered among, if not the best of their kind in the nation. Making them totally anonymous not only protected the identity of the students, but also encourages students to give full and accurate answers."¹⁷

Representatives from the Partnership for a Drug Free New Jersey echoed this sentiment to the Task Force adding that the cost associated with complying with the "active consent" provision of New Jersey law make quality surveys fiscally impractical if not impossible.¹⁸

In a 2004 position paper, the National Council on Alcoholism and Drug Dependence (NCADD-NJ) stated the adoption of *active consent* "has compromised the gathering of data about student drug use to the point that several of the surveys have been discontinued. This has occurred because requiring written permission on a per-survey basis proved too cumbersome and too costly to obtain a credible sample for the firms that conduct them. Furthermore, the student participation rates that have occurred under active consent are not due to the majority of parents having express objections to their child's filling out the questionnaires but simply because the permission forms are often not returned to the schools in a timely manner."¹⁹

The Department of Health and Senior Services (DHSS) has not collected student data from its New Jersey Student Health Survey and Youth Risk Behavior Survey (YRBS) since the inception of the active consent law several years ago. Prior to inception of the active consent law, the DHSS conducted the YRBS in collaboration with the Department of Education and had to ask schools to choose which type of consent they wanted to use, active or passive.

The majority of schools chose passive consent. In the passive consent schools, the student participation rate was about 87 percent and the cost of implementing the survey was \$1.80 per student. In the active consent schools, the cost was \$16.97 per student – nearly 10 times the cost of passive consent schools! When the DHSS conducted the Youth Tobacco Survey, one middle school chose active consent. The overall response rate to that survey for middle schools was 91 percent; the response rate for the active consent school was only 42 percent. The DHSS has concluded that these rates are inadequate to provide meaningful information about the youth populations under study and that state agencies cannot afford to conduct statewide surveys that mandate active consent.

¹⁶ Multiple committees of the Task Force have recommended the repeal of N.J.S.A. 18A: 36-34. *See* Appendix 3.

¹⁷ Terrence Farley, Esq. is the First Assistant in the Ocean County Prosecutor's Office. His testimony is available at http://www.nj.gov/steroids/hearing_audio.html.

¹⁸ *See supra* at n. 13.

¹⁹ *See* Appendix #3.

In addition, the Department of Law and Public Safety's triennial high school survey, which had been conducted since 1980 and had provided useful trend analysis concerning drug and alcohol use among New Jersey high school students, has been suspended.

Furthermore, numerous nonprofit agencies and federal grantees have halted their surveys or are seriously struggling to comply with the provisions of the current active consent law. For example, the Partnership for a Drug Free New Jersey ended its middle school survey because the cost of administering it tripled and the statistical reliability of the survey could not be assured in light of the requirements of the law. The Partnership for a Drug Free New Jersey had used previous survey findings to develop and implement specific education and prevention programs.

Recommendation: Actively pursue the repeal of N.J.S.A. 18A: 36-34
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Supplements

Another area of concern to the subcommittee is the use of "performance enhancing" supplements. Most supplements combine vitamins, minerals and other substances (caffeine, amino acids, etc.) and are taken as a pill or drink to boost energy and enhance performance.

In a recent *Washington Post* article, writer Josh Barr stated, "Even more widespread among high school athletes, however, is the use of over the counter supplements, such as creatine, to help improve performance."²⁰

"I've seen guys in my school use mass amounts of protein and some use creatine," said a football player and track athlete at a north Jersey parochial school in a one-on-one interview with Peter King conducted for the sub-committee.

According to a 2002 survey of high school and college coaches conducted for General Nutrition Centers, Inc (a well known retailer of supplements) 92% of those responding believe that athletes are turning to supplements more than ever and that 87% of the responding coaches said that supplements are safe.²¹

A 2003 study released by the Blue Cross and Blue Shield Association found that approximately 1.1 million young people aged 12-17 are taking supplements, a 10% increase from a similar study in 2001.²²

The dietary supplement industry is largely unregulated. The Food and Drug Administration (FDA) classifies supplements as a food, requiring manufacturers to only provide the agency with information on why their products can be reasonably expected to be safe.

²⁰ Available at <http://www.washingtonpost.com/wp-dyn/articles/A583...rrer=email>.

²¹ Available at http://www.gnc.com/about_gnc/pr_detail.aspx?id=79&lang=en.

²² Available at http://www.supplementquality.com/news/ephedra_teens_BCBS.html.

“Because existing law treats dietary supplements as foods, consumers think they are safe” stated American Medical Association (AMA) trustee Ron Davis during testimony recently before a U.S. Senate subcommittee. “Many consumers believe these products have been approved by the government, when in fact they have not.” The AMA has been calling for stricter regulation of supplements for a number of years.²³

In a recent study conducted for the International Olympic Committee (IOC), 634 non-hormonal supplements were obtained from around the globe and tested for substances not appearing on the label. An astounding 14.8% of the products tested positive for traces of prohormones (steroid precursors).²⁴

The IOC, NCAA and other national and international sports regulatory agencies maintain a list of banned substances which includes prohormones and many “performance enhancing” supplements.

The General Nutrition Centers (GNC) survey also indicated 43% recommended supplements to their athletes. The National Federation of State High School (NFHS) has issued a policy statement suggesting its member associations and schools take steps to prohibit employees from distributing or recommending supplements. Texas law makes it a misdemeanor for public school employees to “distribute, sell or market” supplements to athletes.

Recommendation: Develop legislation to make the sale of creatine and other “performance enhancing” supplements illegal to minors in the State of New Jersey.

Recommendation: Develop legislation to make it a misdemeanor for public school employees to “distribute, sell or market” supplements to school athletes.

Other State Laws Regarding Steroid Use and Education

Student steroid use and education are addressed by New Jersey in N.J.S.A. 18A: 40A-1 which requires “*Instructional programs on the nature of drugs, alcohol, anabolic steroids, tobacco, controlled dangerous substances...*” and in 18A: 40A- 9 and 12 which deals with prevention and treatment referral programs. Similar education requirements can be found in the Education Codes of California, Illinois, Texas, and Virginia.

Pennsylvania law (PA ST 35 P.S. s 807.1) mandates that “*The board of school directors in every school district in this Commonwealth shall prescribe, adopt and enforce rules and regulations to prohibit the use of anabolic steroids, except for a valid medical purpose, by any*

²³ Testimony of Ron Davis, American Medical Association (2002). Available at http://www.supplementquality.com/news/ephedra_teens_BCBS.html.

²⁴ *Current Sports Medicine Reports*, 2004, 3:234-241. AAS precursors, also known as prohormones, are substances that can be converted by the body into testosterone. See *infra* p.27

pupil involved in school-related athletics. Bodybuilding, muscle enhancement, increasing muscle bulk or strength or the enhancement of athletic ability is not a valid medical purpose. Human Growth Hormone (HGH) shall not be included as an anabolic steroid under the provisions of this act.”

California Civil Code § 1812.97 requires that the following warning be posted in athletic facilities used “for instruction, training, or assistance in physical culture, body building, exercising, reducing, figure development, or any other related physical skill, or for baseball, football, tennis, basketball, gymnastics, track and field, hockey, ice skating, weightlifting, wrestling, or bicycling.”

The warning is as follows:

Warning: Use of steroids to increase strength or growth can cause serious health problems. Steroids can keep teenagers from growing to their full height; they can also cause heart disease, stroke, and damaged liver function. Men and women using steroids may develop fertility problems, personality changes, and acne. Men can also experience premature balding and development of breast tissue. These health hazards are in addition to the civil and criminal penalties for unauthorized sale, use, or exchange of anabolic steroids.

"Athletic facilities" includes a health studio regulated pursuant to Title 2.5 (commencing with Section 1812.80), a professional boxers' training gymnasium, as defined in Section 18685 of the Business and Professions Code, any privately owned sports facility or stadium in this state which is open to the general public, and any publicly owned sports facility or stadium in this state, (California) including facilities in institutions of higher learning and schools that include any or all grades 7 to 12, inclusive.

An Ohio statute requires a similar statement to be “conspicuously posted in locker rooms of recreational and athletic facilities operated by the state university or college for use by students” and Washington requires that “The superintendent of public instruction shall develop and distribute to all school districts signs of appropriate design and dimensions advising students of the health risks that steroids present when used solely to enhance athletic ability, and of the penalties for their unlawful possession provided by RCW 69.41.300 through 69.41.350. School districts shall post or cause the signs to be posted in a prominent place for ease of viewing on the premises of school athletic departments.”

Interscholastic athletic eligibility sanctions can be found in the laws of Nebraska (NE ST § 79-296), Virginia (VA ST § 22.1-276.3) and Washington (WA ST § 69.41.340).

Recommendation: Develop legislation requiring the posting of steroid warnings in gymnasiums and locker rooms of New Jersey public and non-public educational institutions.

EDUCATION²⁵

The Education Sub-Committee understands the importance of providing valid information to students, athletes, parents, coaches and school personnel in attempting to combat the on-going problem of steroid abuse. The fact that this problem starts as early as the elementary school level with the average starting age being 14 indicates that the information should be disseminated prior to high school.

Recommendation: Steroid education should be built into the DARE Program and introduced at the fifth grade level.

Recommendation: Integrate information on steroids, including prevention strategies, strength building alternatives and the understanding of health food labels, into the health and physical education curriculum at the seventh and eighth grade levels.

The recommendations for the high school level are based upon feedback from various school and private organizations. Each group is committed to eradicating steroid use. The following are suggestions from these groups as they pertain to the 9-12 grade levels.

Athletic Trainer's Society of New Jersey²⁶

This group would like to become involved in educating parents, athletes and coaches in regard to use of anabolic steroids, steroid precursors and nutritional supplements. Suggestions would include:

1. Develop a downloadable presentation that certified athletic trainers can use to educate parent groups and students in a classroom setting.
2. Utilize the resources of the Partnership for a Drug Free New Jersey to develop posters highlighting the dangers of steroid use, steroid precursors and nutritional supplements. These posters could be displayed in locker rooms, weight rooms and athletic training facilities.

²⁵ Professor Richard Bakker served as Chair of the Education Sub-Committee. Members included Bill Regan, Wilbur Aikens, William King, Charles Earling, Robert Baly, Tanya Dargusch and Jodi Bocco.

²⁶ The Athletic Trainers' Society of New Jersey (ATSNJ) consists of Certified Athletic Trainers, Athletic Training Students, Physicians and other allied health care professionals living or employed in the state of New Jersey. It is committed to the advancement and improvement of the athletic training profession in the state.

New Jersey High School Principals and Supervisors Association²⁷

The recommendations from this group include:

1. Develop a curriculum on this subject for Health and Physical Education teachers to implement into their classroom instruction.
2. Develop a training program that would be mandatory for all high school and middle school coaches to attend.
3. Train science teachers, student assistant coordinators (SAC's) and school nurses on the harmful effects of steroids and performance enhancing substances.
4. Direct the Governor's Council on Alcoholism and Drug Abuse, and recommend that the Partnership for a Drug Free New Jersey develop posters and anti-steroid advertisements as well as Public Service Announcements (PSA's) highlighting the dangers of steroid use, steroid precursors and nutritional supplements. Such posters would be displayed in locker rooms, weight rooms, athletic training facilities and at all state tournament games and championships.
5. Organize school assembly programs with experts in the field as well as reaching out to local civic organizations such as the Rotary, Kiwanis, Lions, etc., to educate their members at their respective meetings.
6. Network with the following professional organizations in regard to speaking at their yearly conferences and workshops: New Jersey School Boards Association (NJSBA), New Jersey Association of Health, Physical Education, Recreation and Dance (NJAHPERD), New Jersey Education Association (NJEA), New Jersey Principal and Supervisors' Association (NJPSA), New Jersey Association of Superintendents/Administration (NJASA) and Director of Athletic Association of New Jersey (DAANJ).

²⁷ The New Jersey Principals and Supervisors Association (NJPSA) is dedicated to assisting school leaders promote effective teaching and student learning.

This organization, which has the most visible involvement with the high school athletic environment, makes the following recommendations:

1. Incorporate steroid, steroid precursors and nutritional supplement education as well as alternative approaches to strength gains into their newly developed coaches' education program.
2. Distribute materials, provide support and be a resource to assist local districts in their efforts to provide in-service programs to athletes, coaches and parents.
3. Conduct semi-annual or annual workshops for coaches and athletic directors in identifying the components of steroid abuse/use and prevention strategies.
4. Provide speakers on steroid abuse/use and prevention strategies to all coaches' workshops (approximately 30 per year) for all sports, particularly those whose athletes are at high risk, i.e., football, wrestling, etc.
5. Provide anti-steroid ads in all of our sports programs and also as public service announcements at all state tournament games. The resources of the Partnership for a Drug-Free New Jersey should be utilized to accomplish this.

In addition to the previously mentioned organizations and recommendations, the Education Sub-Committee suggests utilizing an out-of-school resource; the volunteer youth league coaches in New Jersey. Research has indicated that the youth sport coach, of whom there are thousands in New Jersey, has a profound influence on the young athlete. Educating this group of coaches to speak to their players can only help the elementary school children to better understand the dangers of steroid abuse.

Currently, many of these offices conduct coaches' education programs in order to satisfy the requirements of the "so-called" "Volunteer Coaches Immunity Act."²⁹ This State law provides limited forms of immunity to volunteer coaches who attend these workshops. It would be a simple matter to build in a small steroid education component. The two most recognized providers of these workshops are the New Jersey Youth Sports Alliance and the Rutgers Youth Sports Council. This is an untapped resource that should be considered. A similar drug prevention strategy was utilized and appeared to be successful in the mid 1990s.

In conclusion, the Sub-Committee recommends that any future education programs must address not only the areas of steroid abuse and prevention strategies but also provide safe alternative methods for achieving strength gains. The Sub-Committee believes this to be

²⁸ The New Jersey State Interscholastic Athletic Association (NJSIAA) founded in 1918, is a voluntary, non-profit organization made up of 425 accredited public, private and parochial high schools in the state.

²⁹ N.J.S.A. 2A: 62A06

essential. The Sub-Committee also strongly encourages the Governor to take the lead in reaching out to the various organizations that have been mentioned in order to facilitate the implementation of the suggested strategies.

TESTING³⁰

History of Student Drug Testing In New Jersey

Random Testing

A number of school districts in New Jersey have conducted random drug and alcohol testing of student athletes since the mid 90's following the U.S. Supreme Court's decision in the *Vernonia v. Acton*³¹ case, which gave permission for schools to randomly test athletes for drugs. This was followed by the *Earls*³² case, which extended testing to extracurricular activities. Then came the New Jersey Supreme Court case of *Hunterdon Central Regional High School v. Joye*³³, which permitted New Jersey schools to test athletes and students in extracurricular activities and those who park on campus.

Reasonable Suspicion Testing

A state law provides that students who appear to be under the influence of a drug can be subject to a medical examination that can include testing. There was also the federal New Jersey case of *Hedges v. Musco*³⁴, which gave schools immunity in reasonable suspicion drug testing of students.

Why the Sub-Committee Recommends Testing

According to the National Institute on Drug Abuse (NIDA)³⁵, 3.4% of last year's high school seniors have used anabolic steroids at least once. Even more alarming, 1.9% of eighth graders admitted to trying steroids. Numerous studies have shown the use of steroids and steroid precursors to be on the upswing. Unfortunately, the compulsions to achieve a desirable body image, to succeed in athletics, or to obtain a college scholarship are strong motivators and influences. These influences cause some young people to risk their long-term health by using performance-enhancing substances as a short cut to meeting their goals.

The Testing Sub-Committee acknowledges that it will take a community-wide effort by parents, coaches, athletes, teachers and physicians to attack this growing challenge. A winning game plan must include not only a comprehensive educational approach but also a well-designed program of random student drug testing.

³⁰ Lisa Brady served as Chair of the Sub-Committee on Testing. Members included David Evans, Esq., Timothy Lingle and Bill Regan.

³¹ 515 U.S. 646 (1995).

³² *Board of Education v. Earls*, 536 U.S. 822 (2002).

³³ 176 N.J. 568 (2003).

³⁴ 33 F. Supp. 2d 369 (D.N.J. 1999).

³⁵ Available at <http://www.nida.nih.gov/DrugPages/Steroids.html>. See Appendix #3.

At this time, there is current data accessible on the National Student Drug Testing website (www.studentdrugtesting.org) which shares information and data about the success of student random drug testing programs nationally. Included in this data, is information about the successful random student drug-testing program at Hunterdon Central Regional High School in New Jersey. In interviews with principals across the country in schools with random student drug testing, the message is clear – student random drug testing provides young people with a means to refuse illegal substances. Random drug testing empowers teens to say no to behaviors that are harmful to their health and their futures.

Student drug testing can be cost effective when approached sensibly by schools. By working to design statewide contracts for testing, these costs can be further controlled. Currently, schools that are drug testing randomly for illegal substances can do so for anywhere from \$15 to \$30 per test. Steroid testing, although significantly more expensive, could be negotiated with local laboratories on a statewide basis and costs reduced. These types of negotiations could be easily undertaken by an organization such as the National Center for Drug Free Sport (NCDFS), which handles the random drug-testing program for the NCAA.

Recommendation: The Testing Sub-Committee recommends repeal of the active consent law for surveys.

Random student drug testing is legal as long as schools can demonstrate even a low threshold of need and that they have tried other prevention measures including education. Surveys, student and staff interviews, and information from school student assistance counselors and local law enforcement can provide adequate information for the demonstration of need.

Surveys are the best way to accurately determine the extent of steroid use among New Jersey teenagers. A stumbling block to securing this information is the law requiring active consent in order to survey children in New Jersey. The law severely restricts our ability to assess adolescent behaviors. The Testing Sub-Committee recommends the repeal of the active consent law in New Jersey.

Recommendation: The Testing Subcommittee recommends random testing for steroids.

The Testing Sub-Committee supports student random drug testing for steroids and drugs of abuse as part of school comprehensive drug abuse prevention programs. In order to comply with the law, such testing will be for athletes, students in extracurricular activities and those who park on campus. The sub-committee offers the options below to make this highly effective prevention model accessible for schools.

OPTIONS

Many schools in New Jersey randomly test students or are in deliberations about student drug testing. Not all schools may want to include testing for steroids due to cost issues. The options below will provide for testing programs that can reduce costs through a statewide program. Testing providers will reduce costs if the testing can be done on a high volume basis.

Option 1.

Random championship testing for steroids

Random championship testing will deter steroid use among student-athletes in our schools. Random championship testing will be conducted for qualifying teams or individuals, based on sport.

Option 2.

Random year-round testing for steroids

Random year-round testing will deter steroid use in our schools. Random year-round testing of all student-athletes would be performed at any time throughout the academic year.

Option 3.

Random year-round testing and championship testing for steroids

Random testing of student-athletes would be performed at any time during the academic year and championship testing will be conducted for qualifying teams and individuals based on sport.

While not the subject of this report, the Task Force further recommends that the State consider testing for all drugs of abuse in a comprehensive drug-testing program. Such testing would comport with *S-500*³⁶, and include student-athletes, students participating in extracurricular activities, as well as students holding school parking permits.

³⁶ See Appendix #3.

TESTING PROCESS

Groups Involved

Responsibilities

NJSIAA

- Manage statewide student-athlete championship and year-round steroid testing program
- Bid process to choose outside agency
- Collect and verify sport rosters
- Provide outside agency with sport rosters
- Establish and uphold sanctions associated with positive results

NCDFS or similar agency

- Collect rosters from NJSIAA
- Make selections for random and/or championship testing
- Complete collections
- Report positive results to agreed upon entities

School Districts

- Provide sport rosters to NJSIAA
- Make randomly chosen students available for testing
- Contract to testing agency for drugs of abuse results if desired
- Impose any additional sanctions decided upon by individual schools

HEALTH/PSYCHOLOGICAL EFFECTS OF SUPPLEMENTS AND STEROIDS³⁷

Anabolic steroids³⁸:

Some athletes take a form of steroids – known as anabolic steroids – to increase their muscle mass and strength. The main anabolic steroid hormone produced by the body is testosterone.

Testosterone has two main effects on the body:

- **Anabolic effects** promote muscle building.
- **Androgenic effects** are responsible for male traits, such as facial hair and a deeper voice.

The anabolic steroids that athletes use are synthetic modifications of testosterone. These drugs were developed in an attempt to maximize the anabolic effects and minimize the androgenic effects of testosterone. As it turns out, these two actions of testosterone cannot be separated.

Given by pill, injection or topical treatment, these hormones have many medical uses. Some of these include replacement therapy for men deficient in testosterone, helping people with AIDS maintain muscle mass and reduce muscle wasting, and treating rare types of anemia.

Why are these drugs so appealing to athletes? Besides making muscles bigger, anabolic steroids may help athletes recover from a hard workout more quickly by reducing the amount of muscle damage that occurs during the session. In addition, some athletes may like the aggressive feelings they get when they get when they take the drugs.

However, many athletes take anabolic steroids at doses that are much higher than those prescribed for medical reasons. The effects of taking anabolic steroids at very high doses have not been well studied.

The evidence clearly shows that taking steroids is dangerous. The list of possible side effects, outlined below, is lengthy. In addition to organ damage and the threat of cancer, side effects may include psychological problems such as “roid rage.”³⁹ The impact of these side effects may well be magnified in younger users.

³⁷ Dr. Timothy Hosea chaired the Committee on Health and Psychological Effects of Supplements and Steroids. Members include Dr. Craig Kimmel, Timothy Lenge, Dr. Charlie Maher, Professor Richard Bakker and Commissioner Dr. Fred Jacobs.

³⁸ See *Performance-enhancing drugs: Dangerous, damaging and potentially deadly*. Available at www.mayoclinic.com/invoke.cfm?id=HQ01105.

³⁹ “Roid-Rage” is often characterized as abnormal violent aggression exhibited by the user. See <http://www.emaxhealth.com/25/1895.html>.

Historical Perspective:

Testosterone was first discovered in 1936. In 1939, Nazi Germany was involved in the systematic experimentation of the use and effects of testosterone. During the 1950's, Soviet weight lifters began widespread use of testosterone and by 1964 dominated their sports. In 1958, Ciba Pharmaceutical manufactured the first synthetic Anabolic-Androgenic Steroids (AAS), Dianabol, which is three times more anabolic than androgenic.

In 1968, the International Olympic Committee (IOC) banned the use of AAS. *Sports Illustrated* exposed the use of AAS in athletics 1969 and in 1971, Lyle Alzado identified the NFL drug problem. Routine urine testing was instituted in the 1976 Montreal Olympics, and the 1983 Pan-Am games in Venezuela resulted in the banning of 19 athletes for steroid use. The first NFL penalty for AAS use occurred in 1987 and routine testing in the NFL began in 1988. Steroids were brought to the forefront in the 1988 Olympics when sprinter Ben Johnson had his gold medal taken away for a positive blood test. In 2002, *Sports Illustrated* reported on Ken Caminiti, the 1996 Major League Baseball MVP, and his steroid use. In 2004, Congress launched an inquiry on the AAS policy of Major League Baseball.

In 2000 and 2001 the IOC funded a study that revealed that a significant percentage of nutritional supplements manufactured were contaminated with AAS. 2005 saw the first successful lawsuit against a dietary supplement maker. A swimmer, Kicker Vencill claimed that a contaminated vitamin manufactured by Ultimate Nutrition of Farmington Connecticut caused him to test positive for AAS costing him a chance at the 2004 Olympics.⁴⁰

Reasons for use:

According to the University of Michigan's Institute for Social Research, scholastic athletes often turn to performance enhancing substances and steroids to augment their performance in their chosen sport.⁴¹ They may use these substances to keep up with their peers, or succumb to peer pressure to fit in on their respective team. Still, other athletes use performance-enhancing substances to emulate their professional heroes. Non-athletes use these substances in an attempt to obtain an "ideal" body image dictated by popular culture, which is easier to obtain through chemical enhancement.

AAS effects:

If accompanied with a vigorous, progressive weight training program, and a high protein diet, AASs will increase muscle mass and strength. This training combination will increase the amount and saturation of steroid receptors in muscle tissue and increase the activation of protein synthesis in muscle cells. The strength stimulus includes euphoria with diminished fatigue and

⁴⁰ Fox, B; *Banned swimmer wins case over supplements*. Associated Press (May 14, 2005).

⁴¹ See Appendix #3.

faster post exercise recovery, thus allowing for increased intensity of workouts, increased duration and increased frequency of workouts resulting in increased muscle mass and strength.

AAS will increase the normal epitestosterone to testosterone ratio in the urine from the normal 1:1 to >6:1 and much higher. In order to control the side effects associated with taking the AASs, they are taken in a “cycled” and “stacked” fashion. Cycling indicates the taking of the drug for a period of time alternating with a steroid free period of time (about 10-12 weeks). Stacking refers to the practice of taking different drugs at the same time to maximize the weight gain and strength. They may also be taken in a pyramid fashion with increasingly stronger doses to maximize the gains followed by tapering doses to allow the body’s hormone system to recover.

AAS precursors:

AAS precursors, also known as prohormones, are substances that can be converted by the body into testosterone. They are metabolic products formed by the conversion of cholesterol to testosterone and estrogen. Until recently they have been advertised and sold as dietary supplements to improve strength and body appearance. The consumption of these intermediate substances can “drive” the production of active testosterone and estrogen and thereby achieve the same effects, desired and undesired, of AAS.

The FDA White paper of March 11, 2004 stated “There is compelling evidence supporting a reasonable conclusion that, in a dose related fashion, the androgenic and/or estrogenic effects of these prohormones, over time, will have multiple adverse consequences that increase the risk of a striking number of serious adverse events in children and adults of both sexes.”

The common prohormones include:

- Pregnenolone
- Dehydroepiandrosterone (DHEA)
- Norandrostenediol
- Norandrostenedione
- Androstenediol
- Androstenedione (Andro)

As of January 2005, Androstenedione was changed to a Schedule III drug and thus no longer available for sale in retail stores. However, other prohormones such as DHEA and Pregnenolone are readily available.

Adverse Effects of AAS and Prohormones:

These effects are due to the androgenic effects of testosterone and its precursors as well as estrogen.

Androgenic effects:

Acne: AAS increases oil excretion in the skin glands resulting in oily skin, allowing the growth of the bacteria p.acne and subsequent acne infections.

Hirsutism: Excessive hairiness, especially on the face and trunk in both sexes.

Male pattern baldness: In both sexes, may be permanent

Deepening of the voice: Due to laryngeal enlargement

Clitoromegaly: Abnormal permanent enlargement of the clitoris

Loss of female body contour

Altered menstrual cycling

Increased libido in women

Testicular atrophy

Cardiovascular Effects:

- Elevated blood pressure
- Concentric left ventricular hypertrophy
- Decreased HDL-C (good cholesterol)
- Elevated LDL-C (increased risk of atherosclerosis)
- Elevated Triglycerides
- Cardiac arrhythmias (Afib, Vtach, Vfib)
- Altered coagulation
- Peripheral edema (due to fluid retention)

Erythrocytosis: Increased red blood cell production, thickening of the blood

Liver disease:

- Jaundice
- Abnormal liver function tests
- Peliosis hepatic
- Hepatocellular carcinoma

Increased aggressiveness

Obstructive sleep apnea

Estrogenic effects:

- Gynecomastia (enlarged breasts)
- Testicular atrophy (shrinkage)
- Impotence
- Abnormal menstrual cycling
- Endometrial hyperplasia
- Blood clots
- Glucose intolerance / diabetes
- Hypertriglyceridemia: elevated fats in the blood, a risk for heart disease and pancreatic injury

General effects of sex hormones:

- Sex hormone related epilepsy
- Migraine headaches
- Premature closure of growth plates of the bones with reduction in height
- Precocious puberty

Risks in children and adolescents:

This age group is particularly vulnerable to the irreversible effects of testosterone and its prohormones.

- Virilization in girls
 - Severe acne
 - Excessive body and facial hair
 - Deepening of the voice
 - Permanent enlargement of the clitoris
 - Disruption of the menstrual cycle
 - Infertility
 - Premature puberty
 - Premature closure of growth plates in the long bones

- Feminization in boys

- Breast enlargement
 - Testicular atrophy
 - Premature puberty
 - Premature closure of the growth plates in the long bones

Treatment:

Once the diagnosis of steroid abuse is made, a multidisciplinary treatment approach must be implemented. The steroid use must be discontinued and hormone supplementation instituted, as with the withdrawal of the drugs, the testosterone levels will decrease to nearly zero. This produces a significant psychological depression until the body resumes testosterone production.

If needles were shared, HIV, a hepatitis panel and RPR tests must be performed. Non-steroidal anti-inflammatory drugs are started to control the headaches and joint pains associated with drug withdrawal. Other laboratory tests that should be performed include Chem-12, thyroid function tests, Testosterone and Prolactin levels, Complete Blood Count and cholesterol panel.

Psychiatric therapy may help in dealing with the emotional issues associated with steroid withdrawal and the reasons for beginning steroids use in general.

Dietary Supplement use by Scholastic Athletes:

The Dietary Supplement Act of 1994 defined a dietary supplement as a product (other than tobacco) that contains one or more of the of the following dietary ingredients: a vitamin, mineral, amino acid, herb or other botanical; or a dietary substance for use to supplement the diet by increasing the total dietary intake; or a concentrate, metabolite, constituent, extract, or combination of any ingredient described above; and intended for ingestion in the form of a capsule, powder, soft gel, or gel cap, and not represented as conventional food or as sole item of a meal or diet.⁴²

Since the enactment of the Dietary Supplement Act, there has been an estimated 250% increase in the size of the supplement industry to more than \$12 billion dollars. Supplements such as vitamins, minerals, proteins and herbs in various forms are used by 40 -70% of the general population.

Of concern is the use of supplements for improvement of athletic performance or body appearance. One survey of sports and fitness magazines found 183 nutritional supplement products advertised in 12 different magazines in 1 month.⁴³ While there is no data on supplement use by adolescents in New Jersey, several studies suggest a prevalence of supplement use in the range of 30-40% for popular supplements such as creatine, protein and amino acids and various weight loss products. There seems to be no significant difference between the sexes, or those participating in sports.

⁴² Patel DR, Greydanus, DE: *Nutritional Supplement Use by Young Athletes: An Update*, Inter Pediatr 20(1): 15-24, 2005. See also National Institutes of Health: Office of Dietary supplements, available at <http://odp.od.nih.gov>.

⁴³ Greydanus DE, Patel DR: *Sport doping in the adolescent athlete: the hope, hype and hyperbole*. Pediatr Clin North Am 49:829-56, 2002.

While vitamins and minerals are dietary supplements necessary to augment any dietary deficiencies, the use of other dietary supplements promote the addition of muscle and are associated with body building and producing an anabolic effect. It is this area of the dietary supplement industry that is of concern for our adolescents.

In order to achieve the goals of increased strength and size, many augment their diets with protein supplements and meal replacement products containing protein and carbohydrates.

Prohormones are available with the anticipated effect of conversion to testosterone and its anabolic effects.

Amino acids such as glutamine, leucine, isoleucine and valine are metabolized in the muscles and are promoted to be the building blocks for muscle mass and improved athletic performance. Glutamine and arginine are claimed to promote growth hormone secretion, one of the major factors that increase muscle mass.

Creatine is the most popular supplement among all levels of athletes. It has been shown to improve short-term, intermittent, high intensity activity when combined with regular resistance training of increasing intensity and frequency.⁴⁴ It supplies the phosphocreatine that generates the ATP for immediate energy. Creatine has been associated with faster recovery and increased volume of training. Side effects include a predisposition to heat illness associated with dehydration, weight gain, and muscle cramps. Case reports of renal function impairment, cardiomyopathy and hypertension are associated with the use of creatine.⁴⁵

Tribulus terrestris (T. terrestris) is an herbal product containing steroidal glycosides and saponins. It is believed to increase endogenous secretion of leutinizing hormone and testosterone. It has not been shown to enhance the body composition or exercise performance in resistance trained athletes.

Nitric Oxide is promoted to relax the smooth muscle in the body and thus decrease blood pressure and increase blood flow to the muscles, allowing more nutrients to be delivered, aiding muscle growth. However supplements do not contain Nitric Oxide, but rather arginine, which the body uses to synthesize Nitric Oxide.

⁴⁴ Graham AS, Hatton RC; *Creatine: a review of efficacy and safety*. J Am Pharm Assoc 39:803-810, 1999. See also American College of Sports Medicine Roundtable: *The physiological and health effects of oral creatine supplementation*. Med Sci Sport Exer 32:706-717, 2000.

⁴⁵ Congeni J, Miller S.: *Supplements and drugs used to enhance athletic performance*. Pediatr Clin North Amer 49:435-461, 2002. See also Poortmans JR, Francaux M.: *Adverse effects of Creatine supplementation: fact or fiction?* Sports Med 30:155-170, 2000.

Supplement safety:

There exist serious questions regarding the safety and quality of dietary supplements. Oversight of this industry is scarce and there are documented instances of incorrect ingredients, erroneous substitution of products and lack of routine testing to monitor the presence of the “intended” amounts of the active ingredient.⁴⁶ In 2000-2001 the International Olympic Committee funded an international investigation of 634 non-hormonal nutritional supplements obtained in 13 countries from 215 different suppliers. Overall, 14.8% of the products tested were found to contain prohormones not declared on the label. Of the 240 products manufactured in the USA, 45, or 18.8% were found to be contaminated with different AAS, mainly prohormones of testosterone and nandrolone. The AAS concentration ranged from 0.01 microg/g up to 190 microg/g. The concentrations present greater than 1 microg/g resulted in urinary concentrations above the cut off limit for the IOC or resulted in a positive doping result.⁴⁷

This finding was recently corroborated when a California jury found that a multivitamin taken by the swimmer Kicker Vencill was contaminated with a steroid prohormones and resulted in a positive steroid test. This resulted in a two-year suspension and prevented his participation in the 2004 Olympics. He was awarded \$578,635.⁴⁸

Effects of education:

Studies have indicated that parents, coaches and friends are the most common sources of information regarding dietary supplements and also were the most likely to encourage their use. A study of high school coaches found that 75% of those studied scored less than 70% on an exam regarding nutrition. However, 73% believed that they were informed on nutrition and 86% dispensed nutrition information regularly.⁴⁹ Greater knowledge about supplements was found to be a detriment to use⁵⁰, thus indicating that education can be a deterrent to use.

The ATLAS and ATHENA programs target the male and female use of anabolic steroids, alcohol and other drugs and use of sports supplements, while improving healthy nutrition and exercise practices. In a randomized, controlled setting of 31 schools, 12 cities and 2 states with over 3,200 participants, the program resulted in a 50% reduction in new steroid users, reduced “athletic enhancing” supplement use and reduced substance abuse use risk factors, while improving substance abuse protective factors (e.g. enhanced nutrition behaviors, athletic self-efficacy, and perception of athletic competence).⁵¹

⁴⁶ Bailey T., *Nutritional supplement use by young athletes*. Inter Pediatr 20(1): 6-8, 2005.

⁴⁷ Available at http://multimedia.olympic.org/pdf/en_report_324.pdf.

⁴⁸ Fox, B., *Banned swimmer wins case over supplements*. Associated Press, May 14, 2005.

⁴⁹ Bedgodd BL, Tuck MB; *Nutritional knowledge of high school coaches in Texas*. J Am Diet Assoc 83(6): 672-677, 1983.

⁵⁰ Massad SJ, Sheir NW, Koceja DM, Ellis NT; *High school athletes and nutritional supplements: a study of knowledge and use*. Int j Sport Nutr 5(3): 232-245, 1995.

⁵¹ Goldberg L, Elliot DL, Clarke G et al; *Effects of a multi-dimensional anabolic steroid prevention intervention: The ATLAS (Adolescents Training and Learning to Avoid Steroids) Program*. JAMA 276:1555-1562, 1996. See also <http://www.ohsu.edu/hpsm/atlas.html>.

Problem:

Pro-hormones are readily available to adolescents in retail stores in New Jersey

Recommendation: Remove pro-hormones products from the shelves and placed behind the counter.

Recommendation: Limit the sale of pro-hormones to those 18 years or older.

Problem:

Use of body building supplements for enhancement of body image or improved athletic performance by the scholastic athletes

Recommendation: Survey a representative sample of New Jersey students to identify nutritional supplement usage patterns.

Recommendation: Develop education programs based on the findings of the statewide survey (ATLAS, ATHENA models).

Recommendation: Assess an appropriate levy on all muscle building nutritional supplements to discourage their use and raise revenues for statewide surveys, testing and educational programs.

The following nonmuscle-building supplements would be exempt from the levy referenced above ⁵²:

Carbohydrate/electrolyte drinks
Energy bars
Carbohydrate boosters
Vitamins and minerals

⁵² These supplements are permissible under the NCAA Competitive Safeguards and Medical Aspects of Sports Committee (CSMAS).

Problem:

Contamination of dietary supplements with non-labeled prohormones or AAS

Recommendation: Random testing of dietary supplement products for sale in New Jersey to detect steroid contamination.

Recommendation: Monetary and criminal penalties for the manufacturer and owner of retail, internet, and mail order establishments selling contaminated products.

COLLEGE ATHLETICS⁵³

The 2005 NCAA Study of Substance Use Habits of College Student-Athletes showed a decline in self-reported steroid use from 1.4 percent in 2001 to 1.2 percent in 2005.⁵⁴ As shown in previous versions of the study, men were more likely to use steroids than women. The reported steroid use among Caucasians decreased in 2005, but it increased among African-Americans and other races. 43 percent of the self-reported steroid users say they used them to improve their performance and only 12 percent used them to improve physical appearance, which was an 8 percent drop from 2001.

The NCAA drug-testing data for the 2003-2004 academic years has been reviewed and approved for publication. Although the NCAA advises against using this data to draw any conclusions about drug use in collegiate athletics, the steroid results can be viewed as promising. The number of positive tests for anabolic steroids dropped significantly from 82 in 2002-2003 to 45 in 2003-2004. All 45 positive cases in 2003-2004 were discovered during year-round random testing, as were 77 of the 82 positive cases discovered in 2002-2003.

The random year-round and championship testing employed by the NCAA, along with educational initiatives and individual testing programs performed at many institutions, seems to be deterring steroid use in collegiate athletics. Decreases in the self-reported use of certain substances on the NCAA Study of Substance Use Habits of College Student-Athletes have been correlated with specific changes or increases in the NCAA drug-testing program. The recent changes in the Division I year-round testing, the addition of year-round testing to the Division II program, and consideration being given to year-round testing at the Division III level will likely continue the downward trend of steroid use among collegiate athletes.

This perceived downward trend does in no way mean that the use of steroids and other performance enhancing substances should not continue to be a major area of concern. The possibility of testing does not deter all individuals from seeking that chemically produced competitive edge. Also, the emergence of newly created and virtually undetectable substances will challenge the NCAA as it attempts to provide a level playing field in the future.

⁵³Timothy Lenge chaired the Subcommittee on Steroids and College Athletics. Members included Robert Mulcahy.

⁵⁴ Available at

http://www2.ncaa.org/media_and_events/association_news/ncaa_news_online/2005/08_29_05/front_page_news/4218n02.html.

APPENDIX #1

Governor's Task Force on Steroid Use and Prevention Meeting/Hearing

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Topic</u>
July 19, 2005	11am-12pm	L103	EO Signing/Meeting
August 2, 2005	10am-12pm	L103	Assignment of Subcommittees
September 14, 2005	10am-12pm	Committee Room 3	Testing
October 3, 2005	7pm-9pm	Yogi Berra Museum	Focus Groups with Coaches and Athletes
October 6, 2005	10am-12pm	Committee Room 3	Nutritional Supplements
October 12, 2005	10am-2pm	Winants Hall, Rutgers Univ.	Public Hearing
November 9, 2005	10am-12pm	Committee Room 3	Discussion of Recommendations
November 29, 2005	10am-2pm	Student Center, Rutgers Univ.	Summit on Steroid Use and Prevention

Additionally, sub-committees regularly held meetings to discuss issues specific to their areas of expertise.

APPENDIX #2

Individuals who have Provided Testimony to the Governor's Task Force on Steroid Use and Prevention

Task Force Meetings

J.P. Miele – Chairman, Partnership for a Drug-Free New Jersey
Angelo Valente - Executive Director, Partnership for Drug-Free New Jersey
Hon. Francis Blee – Assemblyman, 1st District
Jeff Shuren – Food and Drug Administration
Edward Barocas, Esq. – Legal Director, American Civil Liberties Union
David Evans, Esq. – Executive Director, Drug Free School Coalition

Public Hearing⁵⁵

J.P. Miele - Chairman, Partnership for a Drug-Free New Jersey
Dr. Robert Franks – Physician, New Jersey Association of Osteopathic Physicians
Tanya Dargusch – Head Athletic Trainer, Washington Township High School
William Von Leer – Head Athletic Trainer, Lenape High School
Dr. Timothy Hosea – Orthopedic Surgeon, Robert Wood Johnson University Hospital
Greg Ficarra – Director of Health, Athletics and Physical Education, Perth Amboy Schools
Joe McAuliffe – Certified Strength Specialist, Monmouth County
Terrence Farley, Esq. – First Assistant, Ocean County Prosecutor's Office
Jodi Bocco – SAC Prevention Specialist, West Long Branch School District
Dr. Charlie Maher – Sports Physiologist, Cleveland Cavaliers and Cleveland Indians
James Wasser – Superintendent, Freehold Regional School District
Michael Jones – Professional Wrestler
Stacey Heller – Prevention Counselor, Hackettstown High School

Summit on Steroid Use and Prevention

Dr. Linn Goldberg, M.D. – Oregon Health University

Donald M. Hooton, Sr – President, Taylor Hooton Foundation

Douglas Pasterchick – Special Agent, Drug Enforcement Agency

Peter King – Senior Staff Writer, *Sports Illustrated*

Chad Lewis – Tight End, Philadelphia Eagles

Erik Coleman – Safety, New York Jets

Terrence Farley, Esq. – First Assistant Prosecutor, Ocean County Prosecutor's Office

⁵⁵ Hearing Testimony is available at http://www.nj.gov/steroids/hearing_audio.html.

Principal Documents Cited in Report

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